



Complete Summary

GUIDELINE TITLE

Neck and upper back (acute & chronic).

BIBLIOGRAPHIC SOURCE(S)

Work Loss Data Institute. Neck and upper back (acute & chronic). Corpus Christi (TX): Work Loss Data Institute; 2006. 175 p. [191 references]

GUIDELINE STATUS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory information has been released.

On April 7, 2005, the U.S. Food and Drug Administration (FDA) asked manufacturers of non-prescription (over the counter [OTC]) non-steroidal anti-inflammatory drugs (NSAIDs) to revise their labeling to include more specific information about potential gastrointestinal (GI) and cardiovascular (CV) risks, and information to assist consumers in the safe use of the drugs. See the [FDA Web site](#) for more information.

Subsequently, on June 15, 2005, the FDA requested that sponsors of all NSAIDs make labeling changes to their products. FDA recommended proposed labeling for both the prescription and OTC NSAIDs and a medication guide for the entire class of prescription products. See the [FDA Web site](#) for more information.

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** REGULATORY ALERT **

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INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

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SCOPE

DISEASE/CONDITION(S)

Work-related disorders of the neck and upper back

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Chiropractic
Family Practice
Internal Medicine
Neurological Surgery
Neurology
Physical Medicine and Rehabilitation

INTENDED USERS

Advanced Practice Nurses
Health Care Providers
Health Plans
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

To offer evidence-based step-by-step decision protocols for the assessment and treatment of workers' compensation conditions

TARGET POPULATION

Workers with occupational disorders of the neck and upper back

INTERVENTIONS AND PRACTICES CONSIDERED

The following interventions/procedures were considered and recommended as indicated in the original guideline document:

1. Activity restrictions/work modifications
2. Bone scan

3. Botulinum toxin (injection)
4. Chiropractic care/manipulation
5. Cognitive behavioral rehabilitation for chronic cases
6. Cold packs
7. Discectomy/laminectomy
8. Electromyography (EMG) (needle, not surface), including H-reflex tests
9. Epidural steroid injection (ESI)
10. Exercise
11. Fluoroscopy (for ESIs)
12. Heat/cold applications
13. Home cervical autotraction (patient controlled) devices
14. Laminoplasty
15. Massage
16. Methylprednisolone (high-dose)
17. Muscle relaxants in acute cases
18. Nonprescription medications (e.g., acetaminophen, nonsteroidal anti-inflammatory drugs [NSAIDs])
19. Physical therapy/occupational therapy
20. Psychological screening prior to surgery
21. Return to work
22. Sensory evoked potentials (SEPS)
23. Steroids (in acute spinal cord injury)
24. Stretching as part of an exercise program
25. Surgery
26. Therapeutic exercises

The following interventions/procedures are under study and are not specifically recommended:

1. Acupuncture
2. Bone growth stimulators
3. Electromagnetic therapy
4. Ergonomics
5. Multidisciplinary biopsychosocial rehabilitation
6. Patient education
7. Percutaneous electrical nerve stimulation (PENS)
8. Therapeutic ultrasound

The following interventions were considered, but are not recommended:

1. Back schools
2. Bed rest
3. Biofeedback
4. Cervical orthosis
5. Chymopapain (injection)
6. Cervical collars
7. Computed tomography (Not recommended except for specific indications [See original guideline document])
8. Diagnostic ultrasound
9. Diathermy
10. Discography
11. Disc prosthesis

12. Electrical muscle stimulation (EMS)
13. Electrotherapies
14. Facet-joint injections
15. Flexibility/Range of Motion
16. Fusion (spinal)
17. Galvanic current
18. Immobilization (collars)
19. Iontophoresis
20. Laser therapy
21. Magnetic resonance imaging (Not recommended except for specific indications[See original guideline document])
22. Magnets
23. Manipulations under anesthesia
24. Myelography (Not recommended except for surgical planning)
25. Oral corticosteroids
26. Opioids (Not recommended except for short use in severe cases)
27. Percutaneous neuromodulation therapy (PNT)
28. Powered traction devices
29. Prolotherapy (sclerotherapy)
30. Radiofrequency neurotomy (Not recommended except for specific indications [See original guideline document])
31. Radiography (Not recommended except for specific indications [See original guideline document])
32. Rest
33. Soft collars
34. Surface electromyography (EMG)
35. Thermography (diagnostic)
36. Transcutaneous electrical neurostimulation (TENS)
37. Trigger point injections
38. Videofluoroscopy (for range of motion)

MAJOR OUTCOMES CONSIDERED

- Diagnostic value of tests
- Effectiveness of treatments for relieving pain and restoring normal function

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
 Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Ranking by quality within type of evidence:

- a. High Quality
- b. Medium Quality
- c. Low Quality

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

The guideline developers reviewed published cost analyses.

METHOD OF GUIDELINE VALIDATION

Not stated

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not applicable

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary. The recommendations that follow are based on the previous version of the guideline.

Identify Neurologic Findings

- First visit: may be with Primary Care Physician MD/DO (50%), Orthopedist (35%), or Chiropractor (15%)
- Determine Neurologic Findings -- Initial Evaluation

History

- Note any previous neck problems or related disabilities.
- Determine the onset of the injury and mechanism of injury (any direct trauma, head injury, or fall).
- Determine any history of repetitive micro trauma to the neck and any initial acute episode of pain or whiplash injury.
- Search for any symptoms of possible neurologic impairment, such as weakness in an upper extremity, numbness, or radicular pain radiating into upper extremities.
- Note any psychosocial problems, such as substance abuse, job dissatisfaction, conflict with supervisors, marital problems, and/or financial problems.
- Determine relevant medical history, history of systemic disease, or previous neck injury or disability. Note any history which produces radiating pain in the neck from structures such as the thyroid, the lymph nodes, the esophagus, the trachea, or from a Pancoast tumor in the apex of the lung. Note any history of cancer.

Physical Examination

- Perform a comprehensive examination of the neck and upper extremities including attention to flexibility, strength, and range-of-motion of the neck.
- Perform a careful limited neurological examination of the neck and the upper and lower extremities to determine which diagnostic tests and therapy should be performed. This examination should include reflexes of the biceps, triceps, and brachioradialis tendons and those of the lower extremities, as well as weakness and sensory changes to pin prick by anatomical area (dermatomes) when needed. Check for long tract signs (Babinski and clonus).
- Evaluate for any evidence of weakness or atrophy of muscle groups of the arm.
- Evaluate for any signs of systemic disease.
- Note that any patient with an acute injury and positive neurologic findings requires a neck splint and referral to a spinal surgeon.

Imaging

- Imaging modalities are often not necessary for patients with typical acute neck pain, but due to the risk of treating patients with undiagnosed cervical vertebral fractures, x-rays are necessary if there is any possibility of a fracture, even in patients without neurologic findings. Any patient with a minimal fracture of the cervical spine should have a computed tomography (CT) scan to evaluate the status of the neural arch.
- Indications for x-rays of the cervical spine include the following:
 - A history of direct trauma, blow to the head, any significant whiplash type injury, or any significant fall. These patients should have an x-ray

of the cervical spine. Patients with fractures of the cervical spine should be referred to a spinal surgeon.

- Whiplash with any evidence of neurologic deficit or persistent pain
- Chronic, slow onset of pain, especially if it is increasing or night pain
- A history of systemic disease such as cancer, long-term steroid therapy, or alcohol abuse
- Patients over 50 years of age with any question of etiology of symptoms
- Patients with significant stiffness of the cervical spine
- Lateral flexion and extension views may demonstrate instability of the spine and indicate the need for consultation even in the absence of a fracture (fingertip test), muscle atrophy (calf measurement), local areas of tenderness, visual pain analog
- Indications for magnetic resonance imaging (MRI) of the cervical spine include the following:
 - Any suggestion of abnormal neurologic findings below the level of injury
 - Progressive neurologic deficit
 - Persistent unremitting pain with or without positive neurologic findings
 - Previous herniated intervertebral disk within the last two years and radicular pain with positive neurologic findings
 - Patients with significant neurologic findings and failure to respond to conservative therapy despite compliance with the therapeutic regimen
- Imaging procedures such as CT scans are necessary for any fracture of the cervical spine, with referral to a spinal surgeon.
- Additional imaging procedures, such as bone scan or myelography, have special indications and are rarely needed at this stage, unless strong evidence of systemic disease exists and further evaluations are thought necessary by the spinal surgeon.
- Other tests such as electromyography (EMG) or nerve conduction studies are not necessary in the initial evaluation of patients with new symptoms, due to the fact that these tests will not become positive until four to six weeks after the onset of symptoms. An EMG is not necessary for the diagnosis of intervertebral disk disease with radiculopathy; rather, its value lies in differentiating other types of neuritis, neuropathy, or muscle abnormalities from radicular neuropathy and for cases where the etiology of the pain is not clear. An EMG is most appropriate to perform after an evaluation by a specialist.

Presumptive Diagnosis (see original guideline document for ICD-9 codes)

- Without Neurologic Findings
 - Neck pain with no radiation of pain beyond the neck area
 - Neck pain with radiation of pain in shoulders and upper back, but with no radicular signs
 - Chronic neck pain or chronic neck problems
- With Neurologic Findings
 - Fracture of cervical spine
 - Radicular pain and positive signs indicate a presumptive diagnosis of herniated intervertebral disk
 - Neurologic signs and symptoms at the cervical level and in the lower body or lower extremities

- Radicular pain and positive signs indicate a presumptive diagnosis of herniated intervertebral disk and an MRI or CT scan shows positive findings of a herniated intervertebral disk that matches the clinical findings

Cases Without Neurologic Findings (95% of cases)

- Also first visit (day 1):
 - Prescribe decreased activity if necessary based on severity and difficulty of job, passive therapy with heat/ice (3 to 4 times/day), stretching/exercise, appropriate analgesia (i.e., acetaminophen) and/or anti-inflammatory (i.e., ibuprofen) [Benchmark cost: \$14], back to work except for severe cases in 72 hours, possibly modified duty. Avoid bed rest.
 - No x-rays unless major trauma (e.g., a fall)
 - If muscle spasms, then prescribe muscle relaxant with limited sedative side effects [Benchmark cost: \$44].
 - Reassure patient: common problem (90% of patients recover spontaneously in 4 weeks)

Official Disability Guidelines (ODG) Return-To-Work Pathways(neck sprain)

Whiplash grade 0 (Quebec Task Force grades): 0 days

(See ODG Capabilities & Activity Modifications for Restricted Work under "Work" in the Procedure Summary of the original guideline document)

- Second visit (day 7 - about 1 week after first visit)
 - Document progress (areas of tenderness, motor strength).
 - If still 50% disabled then prescribe manual therapy [Benchmark cost: \$250]: Refer to massage therapist, chiropractor, physical therapist, or occupational therapist (3 visits in first week), or by treating DO.
 - Probably discontinue muscle relaxant.

ODG Return-To-Work Pathways (neck sprain)

Whiplash grade I-III, clerical/modified work: 5 days

- Third visit (day 14 - about 1 week after second visit)
 - Document progress.
 - Prescribe muscle-conditioning exercises.
 - At this point 66 to 75% should be back to regular work.
 - If still disabled, then first imaging study (anteroposterior [AP]/lateral 2-view x-ray of upper back) [Benchmark cost: \$150] to rule out cervical spondylolysis or joint narrowing/spinal stenosis (age related, not caused by recent trauma - will not change treatment)
 - Continue therapist, change from passive to active modality, 2 visits in next week, teach home exercises
 - End manual therapy (physical therapy or manipulation) at 4 weeks.

ODG Return-To-Work Pathways (neck sprain)

Whiplash grade I-III, manual work: 21 days

Whiplash grade I-III, heavy manual work: 28 days

- Up to 3 more visits for follow up and documentation of progress

Cases With Neurologic Findings (5% of cases)

- Also first visit (day 1)
 - Same as non-radicular

ODG Return-To-Work Pathways (cervical disc disorders)

Mild cases with back pain, avoid strenuous activity: 0 days

Initial conservative medical treatment, clerical/modified work: 0-3 days

- Second visit (day 7 - about 1 week after first visit)
 - Same as non-radicular, but
 - Reassure, but warn of increased numbness or weakness of either arm: if so, get back to provider in one day
 - Consider referral to musculoskeletal physician (orthopedist/physical medicine and rehabilitation (PM&R)/sports medicine)
- Third visit (day 14 - about 1 week after second visit)
 - Same as non-radicular, but
 - About 50% can be back at modified duty.
 - If improvement, then add strengthening exercises, increased activity
- Fourth visit (day 21 to 28 - about 1 to 2 weeks after third visit)
 - Document, if no improvement then:
 - First MRI (about 3% of total cases, or 30% of cases with neurologic symptoms) to confirm extruded disk with nerve root displacement [Benchmark cost: \$1,600]
 - MRI or CT not indicated without obvious clinical level of nerve root dysfunction or before 3 to 4 weeks
 - Consider epidural steroid injection (ESI) for severe cases hoping to avoid surgery [Benchmark cost: \$676].
 - Bone scan if spondylolisthesis
 - Second MRI only if progression of neurological symptoms (less than 1% of cases)
 - Refer to fellowship-trained Spine Surgeon: Neurosurgeon (50%), Orthopedist (50%)
 - Before surgery, screen for psychological symptoms that could affect surgical outcome (e.g., substance abuse, child abuse, work conflicts, somatization, verbalizations, attorney involvement, smoking).
 - If psychological factors retarding recovery are suspected, possibly refer to psychologist for testing (Minnesota Multiphasic Personality Inventory [MMPI] or, better, Waddell test) [Benchmark cost: \$540].

ODG Return-To-Work Pathways (cervical disc disorders)

Initial conservative medical treatment, manual work: 35 days

- Surgery (day 28 to 35) (about 2% of total cases, or 20% of radicular cases) (See also "ODG Indications for Surgery™ -- Discectomy/laminectomy" in Procedure Summary.)
 - Review options/outcomes with patient, let patient decide
 - Simple discectomy/laminectomy, minimally invasive [Benchmark cost: \$17,400]
 - Outpatient (23 hour stay)
 - Post-operative pain, walking exercises

ODG Return-To-Work Pathways (cervical disc disorders)

Cervical discectomy, clerical/modified work: 28-56 days

Cervical discectomy, manual work: 56 days

Cervical discectomy, heavy manual work: 126 days to indefinite

Cervical laminectomy/decompression, clerical/modified work: 28 days

Cervical laminectomy/decompression, manual work: 63 days

Cervical laminectomy/decompression, heavy manual work: 105 days to indefinite

- Follow-up visits as required

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

During the comprehensive medical literature review, preference was given to high quality systematic reviews, meta-analyses, and clinical trials over the past ten years, plus existing nationally recognized treatment guidelines from the leading specialty societies.

The type of evidence associated with each recommended or considered intervention or procedure is ranked in the guideline's annotated reference summaries.

Ranking by Type of Evidence:

1. Systematic Review/Meta-Analysis
2. Controlled Trial-Randomized (RCT) or Controlled

3. Cohort Study-Prospective or Retrospective
4. Case Control Series
5. Unstructured Review
6. Nationally Recognized Treatment Guideline (from www.guideline.gov)
7. State Treatment Guideline
8. Foreign Treatment Guideline
9. Textbook
10. Conference Proceedings/Presentation Slides

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

These guidelines unite evidence-based protocols for medical treatment with normative expectations for disability duration. They also bridge the interests of the many professional groups involved in diagnosing and treating work-related disorders of the neck and upper back.

POTENTIAL HARMS

- Several reports have, in rare instances, linked chiropractic manipulation of the neck in patients 45 years of age and younger to dissection or occlusion of the vertebral artery. The rarity of cerebrovascular accidents makes any association unclear at this time and difficult to study.
- Risks of adverse effects from surgery

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

The Treatment Protocol sections outline the most common pathways to recovery, but there is no single approach that is right for every patient and these protocols do not mention every treatment that may be recommended. See the Procedure Summaries (in the original guideline document) for complete lists of the various options that may be available, along with links to the medical evidence.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Work Loss Data Institute. Neck and upper back (acute & chronic). Corpus Christi (TX): Work Loss Data Institute; 2006. 175 p. [191 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2003 (revised 2006)

GUIDELINE DEVELOPER(S)

Work Loss Data Institute - Public For Profit Organization

SOURCE(S) OF FUNDING

Not stated

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

Note: This guideline has been updated. The National Guideline Clearinghouse (NGC) is working to update this summary.

GUIDELINE AVAILABILITY

Electronic copies of the updated guideline: Available to subscribers from the [Work Loss Data Institute Web site](#).

Print copies: Available from the Work Loss Data Institute, 169 Saxony Road, Suite 210, Encinitas, CA 92024; Phone: 800-488-5548, 760-753-9992, Fax: 760-753-9995; www.worklossdata.com.

AVAILABILITY OF COMPANION DOCUMENTS

Background information on the development of the Official Disability Guidelines of the Work Loss Data Institute is available from the [Work Loss Data Institute Web site](http://www.worklossdata.com).

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on February 2, 2004. The information was verified by the guideline developer on February 13, 2004. This NGC summary was updated by ECRI on March 28, 2005, January 13, 2006, and on April 12, 2006.

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